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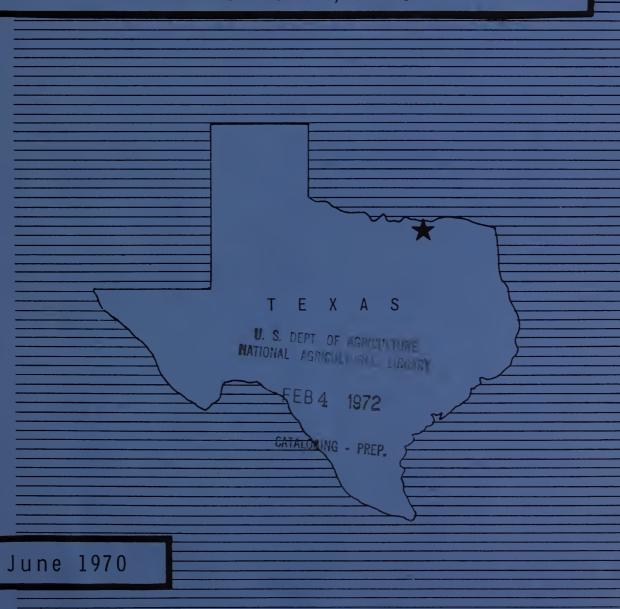
SUPPLEMENTAL WATERSHED WORK PLAN

WATERSHED PROTECTION, FLOOD PREVENTION, RECREATION AND

AGRICULTURAL AND NON-AGRICULTURAL WATER MANAGEMENT

CHOCTAW CREEK WATERSHED

GRAYSON COUNTY, TEXAS



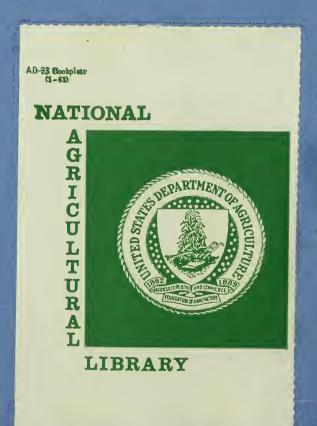
4-21280 8-71 USDA-SCS-FORT WORTH, TEX 1971

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SUPPLEMENTAL WATERSHED WORK PLAN AGREEMENT

Between the

	Ch	loctaw Water	cshed Wa	ater Im	provem	ent Di	istric	
_			Local	Organi	zation			
Ţ	Upper	Elm-Red So	oil and	Water	Conser	vation	Dist	rict
			Local	Organi	zation			
		Grayson	County	Commis	sioner	s Cour	ct	
_			Local	Organi	zation			
_			City	of She	rman			
			Local	Organi	zation			
_			City	of Den	ison			
			Local	Organi	zation			
_			City	of Be	11s		···	
			Local	Organi	zation		•	
				y of Ho				
			Local	Organi	zation			
				of				
hereina:	fter	referred to	as the	e Spons	oring	Local	Organi	lzation

and the

Soil Conservation Service United States Department of Agriculture (hereinafter referred to as the Service)

Whereas, the Watershed Work Plan Agreement for the Choctaw Creek Watershed, State of Texas, executed by the Sponsoring Local Organizations named therein and the Service, became effective on the 12th day of October 1966; and

Whereas, in order to carry out the watershed work plan for said watershed, it has become necessary to modify said watershed Work Plan Agreement; and

Whereas, it has been found necessary to modify the Watershed Work Plan to change the scope of the project by replacing single-purpose floodwater retarding structure No. 10 with multiple-purpose structure No. 10A; and

Whereas, a Supplemental Watershed Work Plan, which modifies the Watershed Work Plan dated November 1965 for said Watershed, has been developed through the cooperative efforts of the Sponsoring Local Organizations and the Service, which plan is annexed to and made a part of this agreement;

4-21280 8-71

Bright B

Now, therefore, the Sponsoring Local Organization and the Service hereby agree upon the following modification of the terms, conditions, and stipulations of said Watershed Work Plan Agreement:

1. Paragraph numbered 3 is modified with respect to Structures 10 and 10A to read as follows:

The percentages of construction costs of structural measures to be paid by the Sponsoring Local Organization and by the Service are as follows:

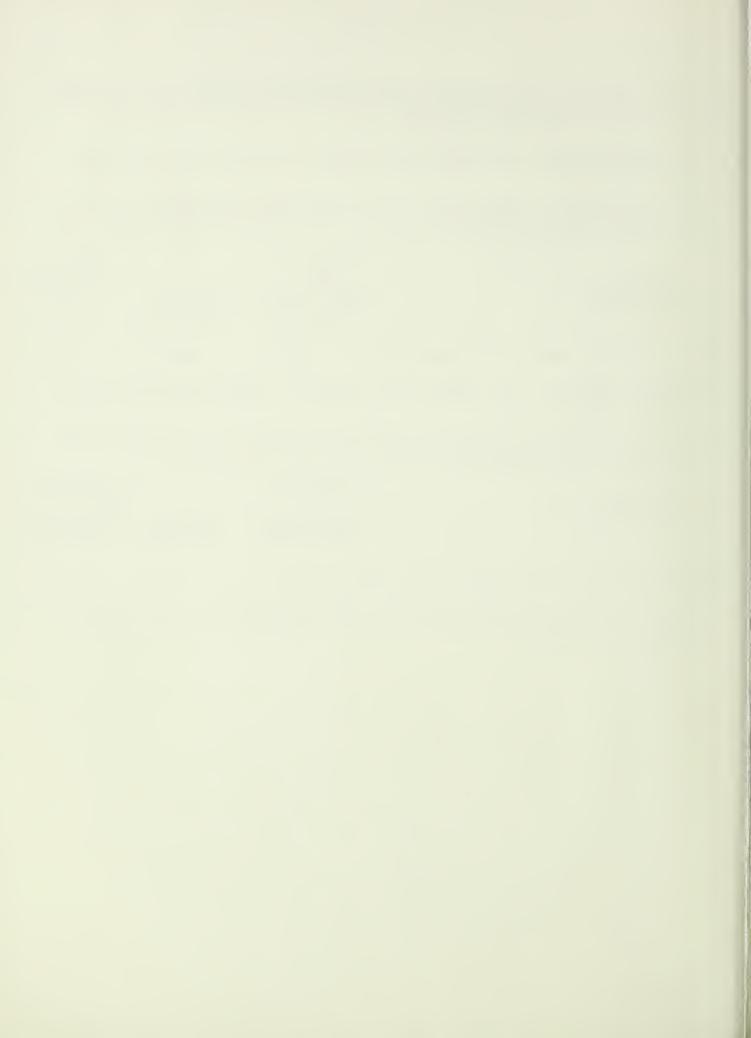
Works of	Sponsoring Local		Estimated Construction
Improvement	Organization	Service	Cost
	(percent)	(percent)	(dollars)
Multiple-Purpose Structure No. 1	LOA (Sherman) 11.33	88.67	82,360

2. Paragraph numbered 4 is modified with respect to Structures 10 and 10A to read as follows:

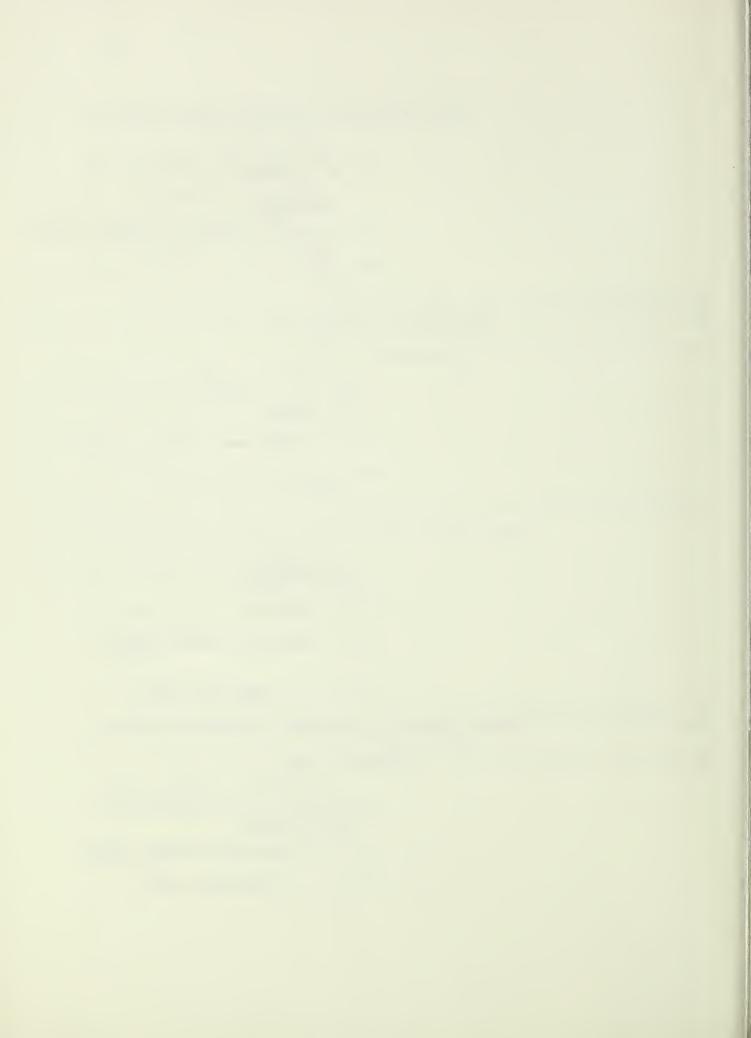
The percentages of the cost for installation services to be borne by the Sponsoring Local Organization and the Service are as follows:

Works of Improvement	Sponsoring Local Organization (percent)	Service (percent)	Estimated Installation Service Cost (dollars)
Multiple-Purpose Structure No. 10A (Sher	man 11.33	88.67	19,575

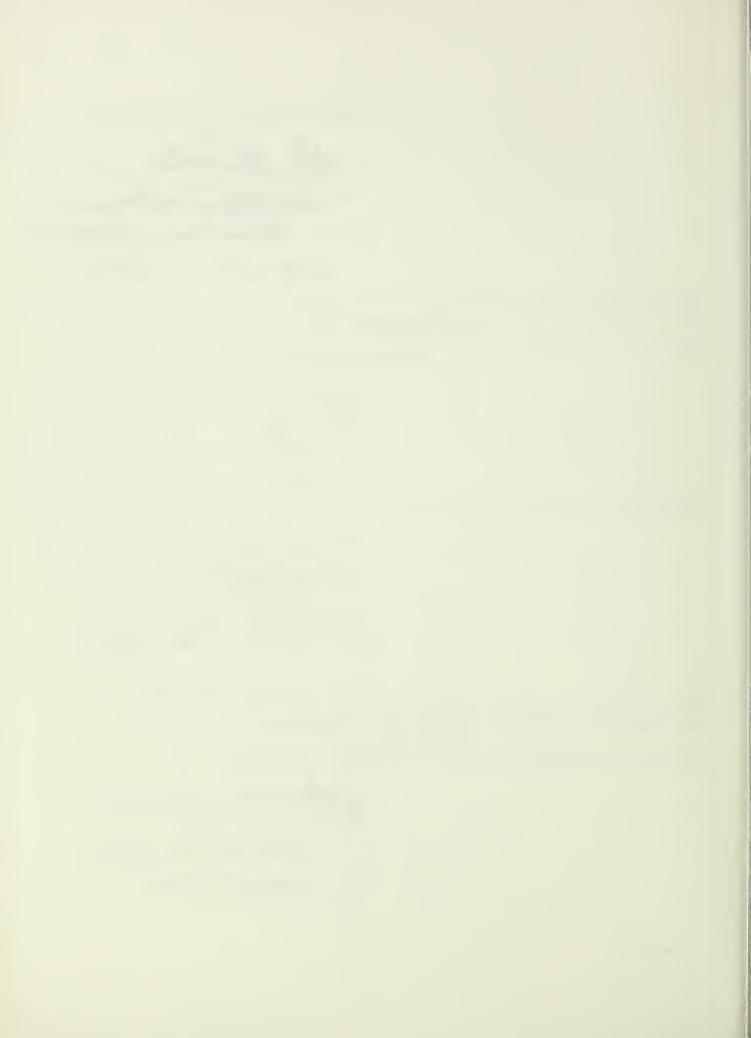
3. The Sponsoring Local Organization and the Service further agree to all other terms, conditions, and stipulations of said Watershed Work Plan Agreement nct modified herein.



Choctaw Wa	tershed Water Improvement District
	Local Organization
•	19mpg
	By // Mew
	T. G. MCGRAW
	Title Willem
	PRESIDENT
	Address theman devas 750
	Pata Tim 25 197 Fip code
	Date /WN71 / 9//
	. //
The signing of this agreement was autl	horized by a resolution of the
governing body of the Choclaw	Watershed WID
Local Organ	nization
adopted at a meeting held on Quine	2 1967
	1, 11
	11-11-
	(Secretary, Local Organization) F. N. ROCERS
	F. N. ROGERS
	Address Sherman In 75090
	Zip Code
	Date Jan 25 1971
Upper E1m-Red Soi	1 and Water Conservation District
	A Aocal Organization
	By Mallar
	//J. H. Bayer
	Title Chairman
	Generally in The Control of the Cont
	Address Manualton William Place
·	Address Muchster, Texas 70252
	Address Muenster, Texas 76252 Zip Code
	Zip Code
The signing of this agreement was autl	Zip Code Date August 12, 1971
	Date August 12, 1971 horized by a resolution of the
	Date August 12, 1971 horized by a resolution of the dil and Water Conservation District
governing body of the Upper Elm-Red So Local Orga	Date August 12, 1971 horized by a resolution of the conservation District anization
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governing body of the Upper Elm-Red So Local Orga	Date August 12, 1971 horized by a resolution of the cil and Water Conservation District anization rust 12, 1971 (Secretary, Local Organization) KEITH KEMPLIN



	Grayson County Commissioners Court
	Local Organization
	By Les Tribble
	Title Carrie Lulie
	County Judge
	Address Address
	Zip code
	Date_7-6-71 75090
	son Co
X -	ganization
adopted at a meeting held on Alac	210-1968
	16.087
	(Secretary Local Organization)
	(Secretary, Local Organization) Paul E. Lee
	Address Sherman J. 15090
	Zip Code
	Date 7/6/7/ :
	- And from front from the first of the same of the sam
	City of Sherman
·	Logal Organization
	By S. Sillespil
	S. E. Gillespie
	Title MAYOR
	Mover PA BOX 1/06
	Mayor P.O. Box 1106 Address SHERMAN TEXAS 75090
	Address SHERMAN IEXAS 75090
	Address SHERMAN TEXAS 75090 Zip Code
	Address SHERMAN IEXAS 75090
The signing of this agreement was au	Address SHERMAN IEXAS 75090 Zip Code Date July 14 1971
The signing of this agreement was augoverning body of the	Address SHERMAN IEXAS 75090 Zip Code Date July 14 1971
governing body of the	Address SHERMAN IEXAS 75090 Zip Code Date July 14 1971
governing body of the	Address SHERMAN LEXAS 75090 Zip Code Date JULY 14 /97/ athorized by a resolution of the
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governing body of the Local Or	Address SHERMAN LEXAS 75090 Zip Code Date JULY 14 /97/ Athorized by a resolution of the SHERMAN Eganization JULY 13 /97/ Secretary, Local Organization) Address SHERMAN LEX 75090



	City of Denison
	Local Organization
	ω
	By totel A. Ceherry
	Robert L. Cherry Title Mayor
	TICLE WILLYOF .
	Address Demison, Texas 75020 Zip code
	Date_ July 15, 1971
The signing of this agreement was aut governing body of the <u>City of Der</u> Local Orga adopted at a meeting held on <u>July 7</u>	nison nization
	F - 11 -
6	(Suxxxxxxx, Local Organization) ity Clerk
	Address Denison, Texas 75020 Zip Code
	· · · · · · · · · · · · · · · · · · ·
	DateIuly_15, 1971
	City of Bells
	City of Bells Locat Organization
	By W. Ray Pies.
	By Locah Organization By Ray Rice
	By Locah Organization By Ray Rice Title Much
	By Locah Organization By Ray Rice
	By Locah Organization By Rey Rice Title Muse Mayor Address Sells Juan 75414 Zip Code Date July 20, 1971
The signing of this agreement was aut governing body of the	Locah Organization By Rey Rice W. Ray Rice Title Muses Mayor Address Sells Juan 754/4 Zip Code Date July 20/97/ horized by a resolution of the
governing body of the the	By Locah Organization By Rey Rice Title Muse Mayor Address Sells Juan 75414 Zip Code Date July 20, 1971
governing body of the Life M	Locah Organization By Rey Rice W. Ray Rice Title Muses Mayor Address Sells Juan 754/4 Zip Code Date July 20/97/ horized by a resolution of the
governing body of the Life M	Locah Organization By Rey Rice W. Ray Rice Title Muses Mayor Address Sells Juan 754/4 Zip Code Date July 20/97/ horized by a resolution of the
governing body of the Life M	Locah Organization By Rey Rice W. Ray Rice Title Muser Mayor Address Sells Juan 754/4 Zip Code Date horized by a resolution of the anization (Secretary, Local Organization)



	City of Howe
	Local Organization
	By house w Bulls
	Lloyd W. Butts
	Title Wayor
	Address Howe, Texas 750
	Zip Code
	Date Aug. J. 1971
The signing of this agreement	t was authorized by a resolution of the
governing body of the	
	ocal Organization
adopted at a meeting held on	77631
	Gloral 15 Ames
	(Secretary, Local Organization) GEORGE BARNES
	Address Jame Jusas 75059
	Date Aug - 5 - 1971
	frage of the state
	Local Organization
	Ву
	Title
	Company and the company of the compa
	Address
	Zip Code
	Date
The signing of this agreement	t was authorized by a resolution of the
governing body of the	
Lo	ocal Organization
adopted at a meeting held on	
	(Secretary, Local Organization)
	Address Zip Code
	Zip Code
	Date
	Soil Conservation Service
	United States Department of Agriculture
	By Alar Acting
	State Conservationist
4-21280 8-71	Date AUG 17 371



SUPPLEMENTAL

WATERSHED WORK PLAN

FOR

WATERSHED PROTECTION, FLOOD PREVENTION, RECREATION,

AND

AGRICULTURAL AND NON-AGRICULTURAL WATER MANAGEMENT

CHOCTAW CREEK WATERSHED Grayson County, Texas

Prepared Under the Authority of the Watershed Protection and Flood Prevention Act, (Public Law 566, 83rd Congress, 68 Stat. 666), as amended.

Prepared By:

Choctaw Watershed Water Improvement District

Upper Elm-Red Soil and Water Conservation District

Grayson County Commissioners Court

City of Sherman

City of Denison

City of Bells

City of Howe

With Assistance By:

U. S. Department of Agriculture Soil Conservation Service June 1970



SUPPLEMENTAL

WATERSHED WORK PLAN

CHOCTAW CREEK WATERSHED Grayson County, Texas June 1970

Problems Relating to Water Management

The city of Sherman has had a marked increase in population since the preparation of the work plan. This has resulted in an increased demand for recreational facilities for its new citizens. Floodwater retarding structure No. 10 is located in an area which has been annexed by the city and is currently undergoing development as a residential area. The city wishes to avail itself of the opportunity to include recreation storage in this structure at an extremely reasonable cost. The inclusion of this storage capacity will enhance the benefits obtained per dollar invested over the evaluation period and will benefit a greater number of people. The drainage area controlled by structural measures will remain as originally planned. There will be no change or reduction of damages or in the damage reduction benefits as shown in the November 1965 plan.

Works of Improvement To Be Installed

The Supplemental Watershed Work Plan Agreement provides for the addition of a multiple-purpose structure for flood prevention and recreation at the original location of floodwater retarding structure No. 10. This structure will hereinafter be designated as multiple-purpose structure No. 10A. The total storage in the reservoir will be 866 acre-feet, consisting of 190 acre-feet for sediment, 593 acre-feet for floodwater, and 83 acre-feet for recreation. The recreation pool will have a surface area of 30 acres. Approximately 85 acres will be required for the pool areas, dam, spillway, protective strip around the lake to control access, and for recreation facilities. Recreation facilities will be installed, wholly at the city's expense, as the demand warrants. Sanitary facilities meeting local and state standards will be provided prior to any public use of recreation facilities. Quality and quantity of water will be adequate for the purpose intended.

Explanation of Installation Costs

The installation cost of multiple-purpose structure No. 10A is estimated to be \$129,735, of which \$90,387 will be paid from Public Law 566 funds and \$39,348 from other funds. Public Law 566 costs consist of \$73,029 for construction; \$10,955 for engineering; and \$6,403 for administrative costs. Other funds consist of \$9,331 for construction; \$1,399 for engineering; \$818 for administrative costs; \$26,800 for land rights; \$500 for water rights; and \$500 for administration of contracts.

All additional costs involved for installation of the multiple-purpose structure over the cost estimate for a single-purpose floodwater retarding structure



designed under current criteria are allocated to recreation. The "Use of Facilities Method" of cost allocation was not used because the cost allocated to recreation did not equal the added costs of adding the storage.

The City of Sherman does not desire cost-share assistance for any costs allocated to recreation and will bear all costs, including land rights costs so allocated. The cost sharing summary for multiple-purpose structure No. 10A is shown in the following tabulation:

.,	: Total	:Estimated	Sponsors':	Estimated	l PL 566
~	: Cost	:C	ost :	Co	st
Item	: Dollars	: Percent	: Dollars :	Percent:	Dollars
Construction	82,360	11.33	9,331	88.67	73,029
Installation Services	19,575	11.33	2,217	88.67	17,358
Land, Easements, and Right of-Way	s- 26,800	100.00	26,800	-	-
Water Rights	500	100.00	500	-	-
Administration of Contract	s 500	100.00	500	=	_
TOTAL	129,735		39,348		90,387

Project Benefits

The City of Sherman plans to install recreational facilities as needed for the benefit of local residents. Adequate sanitary facilities meeting all local and state standards will be provided before the area is open to the general public. Swimming, picnicking, and fishing are expected to be the primary recreational uses. Peak use will occur between May 1 and Labor Day, but some use will be made of these facilities throughout the balance of the year. It is estimated that these facilities will provide 4,800 visitor-days of recreation annually and will produce \$4,159 in net recreation benefits.

Comparison of Benefits and Costs

The total average annual cost of the project is estimated to be \$314,582. The project measures are expected to produce benefits amounting to \$468,901, resulting in a benefit-cost ratio of 1.5:1.0.

Installation of Recreational Development

The City of Sherman will acquire, at no cost to the federal government, all land rights necessary for the installation of multiple-purpose structure No.



10A and will assume the financial responsibility for the share of construction and installation services costs allocated to recreation. The city will also provide recreational facilities, entirely at their own expense, for public use.

Bonds have been voted to finance their share of the cost for this and other watershed works of improvement, and negotiations are now under way with the Farmers Home Administration for a watershed loan.

Operation and Maintenance of Recreational Development

The recreational development will be available to the public generally, and will not be limited to certain segments or organized groups. The City of Sherman will operate and maintain multiple-purpose structure No. 10A and associated recreational facilities. The estimated cost of operation and maintenance of this structure and related recreational facilities to be installed by the city is estimated to be \$2,531. The estimated cost of operation and maintenance for recreational facilities is considered as an associated cost and was deducted from the gross value of recreation benefits. Operation and maintenance responsibilities for all other project measures will be in accordance with provisions of the original work plan.



TABLE 1 - ESTIMATED PROJECT INSTALLATION COST (REVISED)

Choctaw Creek Watershed

Grayson County, Texas

		: Number :	Estima	ted Cost (Doll	lars) 1/
Installation Cost :		: To Be :	Public Law :	Other	:
Item :	Unit	: Applied :	566 Funds :	Funds	. Total
Locin .	OHIL	· iippiieu ·	Joo rando .	Tanas	· Iocai
LAND TREATMENT					
Soil Conservation Service					
Cropland	Acre	40,138	_	362,586	362,586
Grassland	Acre	92,902	_	1,700,178	1,700,178
Technical Assistance	11010	,-,,,-	25,267	170,924	196,191
SCS Subtotal			25,267	2,233,688	2,258,955
TOTAL LAND TREATMENT			25,267	2,233,688	2,258,955
TOTAL BAND TREATMENT				2,233,000	2,230,733
CTDICTIDAL MEACIDEC					
STRUCTURAL MEASURES					
Soil Conservation Service					
Floodwater Retarding	NT	2.2	2 000 600		2 000 000
Structures	No.	33	2,008,600	-	2,008,600
Stream Channel Improvement	Foot	110,180	391,600	-	391,600
Grade Stabilization Struc-		7	15 050		15.050
tures	No.	7	15,950	1 005	15,950
Drainage Main and Laterals	Foot	21,600	5,775	1,925	7,700
Multiple-Purpose Struc-		•	1 000 600	1 050 500	0.046.160
tures	No.	8	1,092,630	1,253,530	2,346,160
Basic Recreational			242		
Facilities	No.	-2	212,905	212,905	425,810
Diversion Works	No.	2		150,000	150,000
SCS Subtotal			3,727,460	1,618,360	5,345,820
Subtotal - Construction			3,727,460	1,618,360	5,345,820
<u>Installation Services</u>					
Soil Conservation Services					
Engineering Services			531,479	154,891	686,370
Other			329,881	123,664	453,545
SCS Subtotal			861,360	278,555	. 1,139,915
Subtotal - Installation Ser	vices		861,360	278,555	1,139,915
Other Costs					
Land, Easements, and					
Rights-of-Way			223,990	1,968,801	2,192,791
Administration of Contracts			• -	39,500	39,500
Water Rights			-	7,700	7,700
Subtotal - Other Costs			223,990	2,016,001	2,239,991
TOTAL STRUCTURAL MEASURES			4,812,810	3,912,916	8,725,726
TOTAL PROJECT			4,838,077	6,146,604	10,984,681
SUMMARY					
Subtotal SCS			4,838,077	6,146,604	10,984,681
TOTAL PROJECT			4,838,077	6,146,604	10,984,681

 $[\]underline{1}$ / Price Base: 1970 for structure 10A; 1965 for all other structural measures



TABLE 2 - ESTIMATED STRUCTURE COST DISTRIBUTION (REVISED)
Choctaw Creek Watershed, Grayson County, Texas

				E 777			1	11-63		-	-		
	Insta	Installation Cost - : Installation	ior	Public Law 566 Funds	Total		Install: Installation	ati	JE.	Other Funds Easements:			
Structure Site Number or	: Construc-	: Services : Engineer -:		: and : :Rights-of-:	Public Law	: : Construc-	Construc-: Engineer-:		of : Con- : R	and : Rights-of-:	: Water :	: Total :1	: Total :Installation
Мате	: tion	ing	Other :	way :	999	: tion	}	Other :t1	tracts:	Way :	Rights:	Other:	Cost
Floodwater Retarding Structures													
2	60,500	9,075	5,304	1	74,879		1	1	200	14,525	1	15,025	89,904
3	70,400	10,560	6,173		87, 133		1	•	200	30,325	1	30,825	117,958
2	57,200	10,296	5,146	1	72,642		•	1	200	16,325	1	16,825	89,467
9 1	53,900	9,702	4,850	ı	68,452		1	1	200	11,200	1	11,700	
~ α	53,400	9,306	4,651	1 1	68,657	. 1	1 1		200	10,375	1 1	10,8755	76,532
0 0	84,700	12,705	7,626	1	104,831		•		2005	35,600		36,100	
11	104,500	13,585	9,004	1	127,089		1	1	2005	293,066	1	293, 566	420,
12	56, 100	10,098	5,048	1	71,246		-	1	200	7,900	-	8,400	
14	41,800	7,524	3,760	1	53,084		1	1	200	15,125	1	15,625	68,709
15	58,300	10,494	5,246	1	74,040		1	ı	200	10,700		11,200	85,240
16	45,100	8,118	4,056	1	57,274		1	1	200	5,725	1	6,225	63,499
18	89,100	13,365	7,813		110.278	. 1	1 1	' '	2005	12,323	1 1	13,023	127 778
19	70,400	10,560	6,173	1	87,133	T		1	200	11,125	1	11,625	98,758
20	52,800	9,504	4,750	1	67,054		1	1	200	9,150	1	9,650	76,704
21	38,500	8,470	3,580	1	50,550		1	1	200	5,025	1	5,525	56,075
77 23	74,800	11,220	6,559	1 1	92,579	1 1	1 1	1 1	200	28,575	•	29,075	121,654
24	74,800	11,220	6,559	1	92,579		1	•	200	30,450	. 1	30,950	123,529
25	44,000	7,920	3,958	1	55,878		•	1	200	9,025	1	9,525	65,403
26	100,100	13,013	8,625	1	121,738	1	1	1	200	24,975	1	25,475	147,213
2/ 28	48,400	8,712	4,355 5,068		61,467		1	1	200	6,150		6,650	68, 117
29	61,600	9,240	5,358	1	76,198		1 1		2005	7,550	1 1	7,950	84,096
31	85,800	12,870	7,524	1	106,194	T	1	•	200	21,650	1	22,150	128,344
32	35,200	7,744	3,274		46,218		1	1	500	7,025	1	7,525	53,743
33	55,000	9,900	4,949	ı	69,849	1	1	1	200	8,475	1	8,975	78,824
37	66,000	9,900	5,787	1	81,687		1	ı	200	15,325	ı	15,825	97,512
39	39,600	8,712	3,684		51,996		• 1	•	000	45, I50 7, 100	ı	45,650	125,976
40	35,200	7,744	3,274	1	46,218	1	1	1	200	6,200	1	6,700	52,918
41	66,000	6,900	5,787	-	81,687		1	•	200	17,425	-	17,925	99,612
Subtotal	2,008,600	329,175	178,202	-	2,515,977	-	1	- 1	6,500	782,791	1	799,291	3,315,268
Stream Channel Improvement	vement		1										
Choctaw Creek	309,100	30,910	25,925	1	365,935		1	•	200	108,750	-	109,250	475,185
rost dak Greek Mill Creek	14,300	10,230	5,979		84,409	•	1 1	1 1	200	53,750		54,250	138,659
										,,,,			74



TABLE 2 - ESTIMATED STRUCTURE COST DISTRIBUTION (REVISED) - Continued

Choctaw Creek Watershed, Grayson County, Texas

4-21280 12-

Total : Installation : Adm. : Easements : Tractal : Installation : Installation : Installation : Adm. : Easements : Tractal : Installation : Install		Inst	Installation Cost - Public Law	st - Publ		566 Funds			Tustallation	n Cost -	Other Finds			
Secretics Construct Engineer En	1.		Thotal	ation	10	Total.	1	Thotall			Popper to	ľ		
Chastrue Engineer Fights of Fights of Fights of Fights Chastrue Engineer Chastrue			Servi	ces	and:	: Public		Servi	ces	of:	and			Total
1,960	••	Construc-	:Engineer-		:Rights-of-	: Law		:Engineer-:		Con-	Rights-of-		Total	Installation
\$\begin{array}{c c c c c c c c c c c c c c c c c c c			: ing	Other	: Way	566		: ing :	Other:	tracts:	Way		Other	Cost
3,960 1792 363 - 5,115 250 325 - 525 125 - 525 125 - 525 125 1,510 125 1,510 125 1,510 126 131 - 1,510 125 1,510 122 1,510 125 1,510	tion													
336, 1460 1,012 463 - 5,115 250 325 - 5575 - 575 1,430 248 111 - 1,847 - 1,1847 - 100 25 - 1125 1,540 308 141 - 1,989 100 25 - 1125 - 1125 1,540 308 141 - 1,989 100 25 - 1125 - 1125 1,540 308 141 - 1,989 100 25 - 1125 - 1125 1,540 308 141 - 1,989 100 25 - 1125 - 1125 1,540 308 141 - 1,989 100 25 - 1125 - 1125 1,540 308 144 - 1,989 100 25 - 1125 - 1125 1,540 308 144 - 1,989 1,000 25 - 1125 - 1125 1,540 308 14,61 - 1,989 1,000 25 - 1125 - 1125 1,540 308 14,61 - 1,989 1,000 25 - 1,000 25 - 1,175 1,540 308 14,61 - 1,989 1,561 3,980 29,381 31,390 1,50		6	1	(
1,400 1,812 463 - 6,535 250 275 - 525 - 125		3,960	767	363		5,115	•	•	1	250	325	•	575	2,690
1,400 286 131 - 1,467 - 2 - 100 25 - 125 1		2,060	1,012	463	•	6,535	1	1	•	250	275	1	525	7,060
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1,540 338 141 . 1,989 .		1,210	242	111	1	1,563	•	1	•	100	25	1	125	1,688
1,540 308 141 - 1,589 - - 100 25 - 125		1,540	308	141	•	1,989	•	٠	•	100	25	1	125	2,114
1,210 242 111 - 1,563 -		1,540	308	141	1	1,989	•	•	•	100	25	1	125	2,114
15 956 3.190 1.461 - 20.601 - 1.725		1,210	242	111	1	1,563	•	•	•	100	25		125	1,688
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335,1646 33,616 23,196 - 397,976 382,136 38,214 32,051 5,000 251,500 1,500 588,048 17,304 10,955 6,403 - 90,387 295,686 29,568 24,800 5,000 1811,500 1,500 588,048 17,044 17,044 6,462 - 91,210 133,056 13,306 11,160 1,000 87,125 1,500 247,147 17,044	se											-		
166,329 16,532 13,956 - 196,902 295,680 27,568 24,800 5,000 181,500 1,500 538,048 73,048 73,044 77,044 77,046 - 6,462 - 91,210 133,058 11,160 1,000 247,147 77,046 - 77,040 - 77,040		336,1646		28,196	1	397,976	382,136	38,214	32,051	5,000	251,500	1,500	710,401	1.108.377
73,029 10,955 6,403 - 90,387 9,331 1,399 818 500 26,800 500 39,348 ks 77,044 7,704 6,462 - 91,210 13,056 11,160 1,000 87,125 1,500 24,147 ks 73,960 9,622 6,373 - 89,955 55,840 7,265 4,812 1,000 34,000 103,917 ks 73,960 9,622 6,373 - 89,955 55,840 7,265 4,812 1,000 34,000 103,917 ks 73,960 9,622 6,373 - 89,955 55,840 7,265 4,812 1,000 34,000 103,917 ks 73,960 9,622 6,373 - 89,955 55,840 7,265 4,812 1,000 34,000 103,917 ks 73,960 9,622 6,373 - 89,955 55,840 7,265 4,812 1,000 34,000 100 1,824,432 2 - 43,111 8,953 1,612 80,447 13,000 88,525 6,100 1,824,432 2 244,116 29,494 24,739 172,590 470,939 140,800 14,080 11,809 1,000 44,500 - 212,189 140,800 14,080 11,809 42,500 209,189 140,800 14,080 11,809 1,000 244,500 - 212,189 384,916 43,574 36,548 215,090 689,128 493,984 44,316 37,169 6,000 2/411,660 1,500 994,629 1,190 10,510 9,066 8,400 121,026 15,350 - 500 14,400 100 30,350 10,11 6,048 500 85,864 72,115 6,048 500 680,464 1,100 223,990 1,106,435 154,891 123,664 20,000 1,011,181 7,700 3,912,916 8,3727,660 531,479 329,881 223,990 4,812,810 1,616,435 123,664 39,500 1,000 3,500 1,000 3,912,916 8,3727,660 531,479 329,881 223,990 4,812,810 1,618,801 123,664 39,500 1,988,801 7,700 3,912,916 8,3727,660 531,479 329,881 223,990 4,812,810 1,618,860 123,664 39,500 1,988,801 7,700 3,912,916 8,3727,60 531,479 329,881 223,990 4,812,810 1,618,860 154,891 123,664 39,500 1,988,801 7,700 3,912,916 8,3727,60 531,479 329,881 223,990 4,812,810 1,618,860 154,891 123,664 39,500 1,988,801 7,700 3,912,916 8,3727,60 531,479 329,881 223,990 4,812,810 1,618,860 154,891 123,664 39,500 1,988,801 7,700 3,912,916 8,3727,60 531,479 329,881 223,990 4,812,810 1,618,801 123,664 39,500 1,988,801 7,700 3,912,916 8,3727,60 531,479 329,881 223,990 4,812,810 1,618,801 123,664 39,500 1,988,801 7,700 3,912,916 8,3727,60 531,479 329,881 223,990 4,812,810 1,618,801 123,664 39,500 1,988,801 7,700 3,912,916 8,3727,801 1,018,801 1,018,801 1,018,801 1,018,801 1,018,801 1,018,801 1,018,801 1,018,801 1,018,801 1,018,801 1,018,801 1,018,801 1,018,801 1,018,8		166,320		13,950	1	196,902	295,680	29,568	24,800	5,000	181,500	1,500	538,048	734,950
ks 7,7044 7,704 6,462 - 91,210 133,056 13,306 11,160 1,000 87,125 1,500 247,147 ks 7,396 9,622 6,333 - 89,955 55,840 6,000 3,000 - 84,000 103,917 ks 3,96 9,622 6,333 - 89,955 55,840 7,265 4,812 1,000 34,000 10,000 11,000 17,571 ks 3,96 9,622 6,333 - 89,955 55,840 7,265 4,812 1,000 34,000 1,000 17,571 ks 3,94 6,110 3,054 - 43,111 8,953 1,612 806 500 5,600 100 17,571 244,116 29,494 84,639 64,438 - 909,441 1,034,996 103,564 80,447 13,000 86,255 6,100 1,824,432 2, 244,116 29,494 42,500 209,189 140,800 14,080 11,809 42,500 209,189 140,800 14,080 11,809 42,500 680,128 493,984 44,316 37,169 6,000 2/411,600 1,500 994,629 1, 100 1 246,116 43,574 36,548 215,090 680,128 493,984 44,316 37,169 6,000 2/411,60 1,500 994,629 1, 100 1 22,105 7,211 6,048 8,000 121,026 15,350 7,211 6,048 10,000 3/15,000 100 116,814 10,105 535 15,114 8,900 206,890 87,455 7,211 6,048 1,000 3/15,000 100 116,814 11,305,535 150,934 116,100 223,990 1,796,559 1,616,435 123,664 20,000 1,013,185 7,700 2,935,875 44 2,105 7,770 3,912,916 8, 101,618,360 1,618,360 1,618,801 7,700 3,912,916 8, 101,010 1,013,185 1,000 1,013,185 1,010 1,012,916 8, 101,010 1,013,185 1,010 1,013,185 1,010 1,011,916 1,010 1,013,185 1,010 1,011,916 8, 101 1,010 1,011,916 1,010 1,011,9		73,029	10,955	6,403	•	90,387	9,331	1,399	818	, 500	26,800	, 500	39,348	129,735
ks 73,96 9,62 ² 6,37 ³ - 89,95 ⁵ 75,000 6,000 3,000 - 84,000 100 103,917 ks 33,947 6,110 3,054 - 43,111 8,953 1,612 8,060 500 5,600 100 17,570 75,000 6,000 5,000 500 100 17,570 75,000 6,000 5,000 100 17,570 75,000 1,000 1,000 100 17,570 75,000 1,000 1,000 100 17,570 75,000 1,000 1,000 100 17,570 75,000 1,000 1,000 100 1,500 100 1,500 100 1,5		77,044	7,704	6,462		91,210	133,056	13,306	11,160	1,000	87,125	1,500	247,147	338,357
ks 33.946 9,622 6,373 - 89,955 55,840 7,265 4,812 1,000 34,000 1,000 103,917 - 84,000 6,000 3,000 - 6,000 1,000 1,000 1,000 17,571 - 84,000 1,00	n Works				1		75,000	6,000	3,000	1	,	1	84,000	84,000
ks 33.947 6.110 3.054 - 43.111 8.9573 1.612 806 5.600 100 17.571 244,116 29,494 24,438 - 909,541 1,034,996 103,364 80,447 13,000 586,525 6,100 1,824,432 2, 244,116 29,494 24,739 172,590 470,939 1353,184 30,236 25,360 5,000 367,160 1,500 782,440 1, 1001 140,800 14,080 11,809 42,500 209,189 140,800 14,080 11,809 1,000 44,500 - 212,189 140,800 14,080 11,809 42,500 209,189 140,800 14,080 11,809 1,000 44,500 - 212,189 140,800 14,080 11,809 42,500 209,189 140,800 14,080 11,809 1,000 367,160 1,500 994,629 1, 1001 15,510 9,066 8,400 121,026 15,350 - 500 14,400 100 30,350 160,155 22,721 15,114 8,900 206,890 87,455 7,211 6,048 500 2715,000 100 116,814 160,155 22,721 15,114 8,900 206,890 87,455 7,211 6,048 1,000 3/15,000 100 116,814 1,305,535 150,934 116,100 223,990 1,796,559 1,616,435 154,891 123,664 20,000 1,013,185 7,700 2,935,875 4, 2775 2,464 775 2,464 775 - 9,014 1,925 - 500 3,350 1,968,801 7,700 3,912,916 8.		73,960	9,622	6,373	•	89,955	55,840	7,265	4,812	1,000	34,000	1,000	103,917	193,872
33.947 6,110 3,054 - 43,111 8,953 1,612 806 500 5,600 100 17,571 766,464 84,639 64,438 - 909,541 1,034,996 103,364 80,447 13,000 586,525 6,100 1,824,432 2 766,464 84,639 64,438 - 909,541 1,034,996 103,364 80,447 13,000 586,525 6,100 1,824,432 2 244,116 29,494 24,739 172,590 470,939 353,184 30,236 25,360 5,000 367,160 1,500 782,440 1, 140,800 14,080 11,809 42,500 209,189 140,800 14,080 11,809 1,000 44,500 - 212,189 384,916 43,574 36,548 215,090 680,128 493,984 44,316 37,169 6,000 2/411,660 1,500 994,629 1, 88,050 15,510 9,066 8,400 121,026 15,350 - 500 14,400 100 30,350 160,155 22,721 15,114 8,900 206,890 87,455 7,211 6,048 500 600 - 86,464 1e-Purpose 1,305,535 150,934 116,100 223,990 1,796,559 1,616,435 154,891 123,664 20,000 1,013,185 7,700 2,935,875 4, 5,775 2,464 775 - 9,014 1,925 - 50 3,500 1,013,185 7,700 3,912,916 8, 33,727,460 531,479 329,881 223,990 4,812,810 1,618,360 154,891 123,664 39,500 1,968,801 7,700 3,912,916 8,	on Works		1	•	1		75,000	6,000	3,000		`	,	84,000	84,000
760,464 84,639 64,438 - 909,541 1,034,996 103,364 80,447 13,000 586,525 6,100 1,824,432 2 244,116 29,494 24,739 172,590 470,939 353,184 30,236 25,360 5,000 367,160 1,500 782,440 1, ional 384,916 43,574 36,548 215,090 680,128 44,316 37,169 6,000 2/411,660 1,500 994,629 1, 88,050 15,510 9,066 8,400 121,026 15,350 - - 500 14,400 100 30,350 ional 122,105 7,211 6,048 500 14,400 100 30,350 160,155 22,721 15,114 8,900 206,890 87,455 7,211 6,048 500 600 - 86,464 1-8-Purpose 1,305,335 150,934 1,616,435 154,891 123,664 20,000 1,013,185 7,700 2,935,875 </td <td></td> <td>33,947</td> <td>6,110</td> <td>3,054</td> <td>_</td> <td>43,111</td> <td>8,953</td> <td>1,612</td> <td>806</td> <td>. 500</td> <td>5,600</td> <td>100</td> <td>17,571</td> <td>60,682</td>		33,947	6,110	3,054	_	43,111	8,953	1,612	806	. 500	5,600	100	17,571	60,682
244,116 29,494 24,739 172,590 470,939 353,184 30,236 25,360 5,000 367,160 1,500 782,440 1, ional 140,800 14,080 11,809 42,500 209,189 140,800 14,080 11,809 1,000 44,500 - 212,189 184,916 43,574 36,548 215,090 680,128 493,984 44,316 37,169 6,000 2/411,660 1,500 994,629 1, 88,050 15,510 9,066 8,400 121,026 15,350 - 500 14,400 100 30,350 ional 22,105 7,211 6,048 500 85,864 72,105 7,211 6,048 1,000 3/15,000 100 116,814 160,155 22,721 15,114 8,900 206,890 87,455 7,211 6,048 1,000 3/15,000 100 116,814 1-Purpose 1,305,535 150,934 116,100 223,990 1,796,559 1,616,435 154,891 123,664 20,000 1,013,185 7,700 2,935,875 4, 5,775 2,464 775 - 9,014 1,918,360 154,891 123,664 39,500 1,968,801 7,700 3,912,916 8,	al	760,464	84,639	64,438		909,541	1,034,996	103,364	80,447	13,000	586,525	6.100	1.824.432	2.733.973
ional 140,800 14,080 11,809 42,500 209,189 140,800 14,080 11,809 1,000 444,500 - 212,189 1,000 14,080 15,514 36,548 215,090 680,128 493,984 44,316 37,169 6,000 2/411,660 1,500 994,629 1, 88,050 15,510 9,066 8,400 121,026 15,350 - 6.008 14,400 100 30,350 1,001 12,105 22,721 15,114 8,900 206,890 87,455 7,211 6,048 500 3/15,000 100 116,814 1e-Purpose 1,305,535 150,934 116,100 223,990 1,796,559 1,616,435 154,891 123,664 20,000 1,013,185 7,700 2,935,875 4, 2,775 2,464 775 - 9,014 1,925 - 500 3,350 1,968,801 7,700 3,912,916 8, 3,727,460 531,479 329,881 223,990 4,812,810 1,618,360 154,891 123,664 39,500 1,968,801 7,700 3,912,916 8, 3,727,460 531,479 329,881 223,990 4,812,810 1,618,360 154,891 123,664 39,500 1,968,801 7,700 3,912,916 8,		244,116	29,494	24,739	172,590	470,939	353,184	30,236	25,360	5,000	367,160	1,500	782,440	1,253,379
140,800 14,080 11,809 44,500 - 212,189 384,916 43,574 36,548 215,090 680,128 493,984 44,316 37,169 6,000 2/411,660 1,500 994,629 1,500 10nal 188,050 15,510 9,066 8,400 121,026 15,350 - - 500 14,400 100 30,350 10al 12,105 7,211 6,048 500 85,864 72,105 7,211 6,048 500 - 86,464 160,155 22,721 15,114 8,900 206,890 87,455 7,211 6,048 1,000 3/15,000 100 116,814 1,305,535 150,934 116,100 223,990 1,796,559 1,616,435 154,891 123,664 20,000 1,013,185 7,700 2,935,875 4, 5,775 2,464 775 9,014 1,925 - 500 3,950 1,968,801 7,700 3,912,916 8,775 <td>screatio</td> <td>nal</td> <td></td> <td>`</td> <td></td>	screatio	nal											`	
384,916 43,574 36,548 215,090 680,128 493,984 44,316 37,169 6,000 2/411,660 1,500 994,629 88,050 15,510 9,066 8,400 121,026 15,350 500 14,400 100 30,350 ional 1,21,105 7,211 6,048 500 85,864 72,105 7,211 6,048 500 600 - 86,464 160,155 22,721 15,114 8,900 206,890 87,455 7,211 6,048 1,000 3/15,000 100 116,814 1-Purpose 1,305,535 150,934 116,100 223,990 1,796,559 1,616,435 154,891 123,664 20,000 1,013,185 7,700 2,935,875 2,775 2,464 775 - 9,014 1,618,360 154,891 123,664 39,500 1,968,801 7,700 3,912,916	ties _	140,800	14,080	11,809	42,500	209,189	140,800	14,080	11,809	1,000	44,500	1	212,189	421,378
88,050 15,510 9,066 8,400 121,026 15,350 500 14,400 100 30,350 10,103 7,211 6,048 500 85,864 72,105 7,211 6,048 500 600 - 86,464 12,105 7,211 15,114 8,900 206,890 87,455 7,211 6,048 1,000 3/15,000 100 116,814 1-Purpose 1,305,535 150,934 116,100 223,990 1,796,559 1,616,435 154,891 123,664 20,000 1,013,185 7,700 2,935,875 2,775 2,464 775 - 9,014 1,618,360 154,891 123,664 39,500 1,968,801 7,700 3,912,916	tal	384,916	43,574	36,548	215,090	680,128	493,984	44,316	37,169	000'9	2/411,660	1,500	994,629	1.674.757
10na 1 10,105 7,211 6,048 500 85,864 72,105 7,211 6,048 500 600 - 86,464 16,0155 22,721 15,114 8,900 206,890 87,455 7,211 6,048 1,000 3/15,000 100 116,814 1e-Purpose 1,305,535 150,934 116,100 223,990 1,796,559 1,616,435 154,891 123,664 20,000 1,013,185 7,700 2,935,875 2,775 2,464 775 - 9,014 1,925 - 500 3,350 - 5,775 3,727,460 531,479 329,881 223,990 4,812,810 1,618,360 154,891 123,664 39,500 1,968,801 7,700 3,912,916			15,510	990'6	8,400	121,026	15,350		1	200	14,400	100	30,350	151,376
72,105 7,211 6,048 500 6,048 500 - 86,464 160,155 22,721 15,114 8,900 206,890 87,455 7,211 6,048 1,000 3/15,000 100 116,814 1e-Purpose 1,305,535 150,934 116,100 223,990 1,796,559 1,616,435 154,891 123,664 20,000 1,013,185 7,700 2,935,875 5,775 2,464 775 - 9,014 1,925 - 5,775 3,727,460 531,479 329,881 223,990 4,812,810 1,618,360 154,891 123,664 39,500 1,968,801 7,700 3,912,916	ecreat 10													
160,155 22,721 15,114 8,900 206,890 87,455 7,211 6,048 1,000 3/15,000 100 116,814 1,305,535 150,934 116,100 223,990 1,796,559 1,616,435 154,891 123,664 20,000 1,013,185 7,700 2,935,875 5,775 2,464 775 - 9,014 1,925 - 5,775 3,727,460 531,479 329,881 223,990 4,812,810 1,618,360 154,891 123,664 39,500 1,968,801 7,700 3,912,916	ties	72,105	7,211	6,048	200	85,864	72,105	7,211	6,048	200	009	1	86.464	172.328
le-Purpose 1,305,535 150,934 116,100 223,990 1,796,559 1,616,435 154,891 123,664 20,000 1,013,185 7,700 2,935,875 5,775 2,464 775 - 9,014 1,925 - 5,775 3,727,460 531,479 329,881 223,990 4,812,810 1,618,360 154,891 123,664 39,500 1,068,801 7,700 3,912,916	tal	160,155	22,721	15,114	8,900	206,890	87,455	7,211	6,048	1,000	3/15.000	100	116.814	323, 704
1,305,535 150,934 116,100 223,990 1,796,559 1,616,435 154,891 123,664 20,000 1,013,185 7,700 2,935,875 5,775 2,464 775 - 9,014 1,925 - 5,775 3,727,460 531,479 329,881 223,990 4,812,810 1,618,360 154,891 123,664 39,500 1,968,801 7,700 3,912,916	fultiple	-Purpose												
5,775 2,464 775 - 9,014 1,925 - 500 3,350 - 5,775 3,775 3,775 - 5,775 3,		1,305,535	150,934	116,100	223,990	1,796,559	1,616,435	154,891	123,664	20,000	1,013,185	7,700	2,935,875	4.732.434
3,727,460 531,479 329,881 223,990 4,812,810 1,618,360 154,891 123,664 39,500 1,968,801 7,700 3,912,916	I and													
531,479 329,881 223,990 4,812,810 1,618,360 154,891 123,664 39,500 1,968,801 7,700 3,912,916		5,775	2,464	775	1	9,014	1,925	1	•	200	3.350		5 775	14 789
		3,727,460	531,479	329,881	223,990	4,812,810	1,618,360	154,891	123,664	39,500	1.968,801	7.700	3.912.916	8.725.726

Price Base: 1970 for structure 10A; 1965 for all other structural measures
Includes the cost of flowage easements, legal fees, and land surveys which are not eligible for cost sharing (\$18,750).
Includes the cost of flowage easements, legal fees, and land surveys which are not eligible for cost sharing (\$6,100). 13151



TABLE 2A - COST ALLOCATION AND COST SHARING SUMMARY (REVISED) Choctaw Creek Watershed Grayson County, Texas

(Dollars) $\frac{1}{2}$

Flood Item : Prevent						
		Municipal :	••	••		
	lood:	Water:	••			••
	Prevention :	Supply:	Irrigation: Drainage:	rainage:	Recreation	: Total
			E			
£			COST ALLOCATION			
31 Please						
110 180 foot of Stroam Channel Improvement						
7 Grade Stabilization Structures 3,978	3,978,503				1	3,978,503
Multiple-Purpose						
Structure No. 1 518	518,018	590,359		1		1.108.377
Structure No. 4 264	264,042	470,908		1	•	734,950
Structure No. 10A 115	115,072			ı	14,663	129,735
Structure No. 13	123,525	298,832	1	ı	`	422,357
Structure No. 30	109,899	167,973	•	,	•	277,872
Structure No. 34	47,939	,	12.743	,	•	60,682
	232,920	545.119		ı	896 718	1 674 757
	95,331		1	ı	228,373	323,704
21 600 feet of Drainage Main and Taterals 7	7,305			7 20%	206011	16,100
	1,000		1	7,394		14,/89

			COST SHARING	ING		
Public Law 566	4,241,054		1	3,544	568,212	4,812,810
Other	1,251,590	2,073,191	12,743	3,850	571,542	3,912,916
TOTAL	5,492,644	2,073,191	12,743	7,394	1,139,754	8,725,726

8,725,726

1,139,754

7,394

12,743

2,073,191

5,492,644

TOTAL

1/ Price Base: 1970 for structure 10A; 1965 for all other structural measures.



TABLE 3 - STRUCTURE DATA - FLOODWATER RETARDING STRUCTURES (REVISED)

Choctaw Creek Watershed

Grayson County, Texas

	:	:Structure No.:	
Item	: Unit	: 10A :	Total
Drainago Area	Sa Mi	1.64	112 57
Drainage Area Storage Capacity	Sq. Mi.	1.04	112,57
Sediment Pool (50-Yr. or 200 Ac. Ft.)	Ac. Ft.	_	2 051
Sediment Reserve (Below Riser - 50-Yr.)	Ac. Ft.		3,851
Sediment in Water Supply Pool	Ac. Ft.	<u>1</u> / ₁₆₈	278
Sediment in Water Supply 1001 Sediment in Detention Pool	Ac. Ft.		3,790
Water Supply Pool	Ac. Ft.	<u>2</u> / ₈₃	3,821
Floodwater Pool	Ac. Ft.	- 63 593	27,301
Total	Ac. Ft.	866	42,735
Surface Area	AC. FL.	000	81,776
	A		660
Sediment Pool (50-Yr. or 200 Ac. Ft.)	Acre	•	668
Sediment Reserve (Below Riser)	Acre	20	159
Water Supply Pool	Acre	30	1,818
Floodwater Pool	Acre	63	5,290
Volume of Fill	Cu. Yd.	131,300	7,337,600
Elevation Top of Dam 4/	Foot	750.9	XXX
Maximum Height of Dam-	Foot	52	XXX
Emergency Spillway		-10	
Crest Elevation	Foot	743	xxx
Bottom Width	Foot	120	xxx
Type 5/		Veg.	XXX
Percent Chance of Use ⁵ /		1.0	XXX
Average Curve No Condition II		82	xxx
Emergency Spillway Hydrograph			
Storm Rainfall (6-Hour) ⁰ /	Inch	13.00	xxx
Storm Runoff	Inch	10.69	xxx
Velocity of Flow (V _e)	Ft./Sec.	6.6	xxx
Discharge Rate	C.F.S.	830	xxx
Maximum Water Surface Elevation $\frac{3}{2}$	Foot	745.3	xxx
Freeboard Hydrograph			
Storm Rainfall (6-Hour)6/	Inch	30.50	xxx
Storm Runoff	Inch	28.00	xxx
Velocity of Flow (V _e)	Ft./Sec.	13.2	xxx
Discharge Rate3/	C.F.S.	7,280	xxx
Maximum Water Surface Elevation 3/	Foot	750.9	xxx
Principal Spillway			
Capacity (Maximum)	C.F.S.	125	xxx
Capacity Equivalents			
Sediment Volume	Inch	-	xxx
Sediment Reserve Volume (Below Riser)	Inch	-	xxx
Sediment in Water Supply Pool	Inch	1.92	xxx
Sediment in Detention Pool	Inch	.25	xxx
Water Supply Pool	Inch	.95	xxx
Detention Volume	Inch	6.78	xxx
Spillway Storage	Inch	7.50	XXX
Class of Structure		С	XXX



- $\underline{1}$ / Includes submerged portion of 100-year sediment accumulation, consisting of 85 acre-feet for first 50 years and 83 acre-feet for second 50 years
- 2/ Recreation water
- 3/ Values obtained from routing
- 4/ Difference in elevation between top of the settled dam and the bottom of the stream channel
- $\underline{5}$ / Is the average number of times the emergency spillway will be expected to function in 100 years.
- 6/ Based on Engineering-Hydrology Memorandum TX-1, "Emergency Spillway and Freeboard Hydrograph Development," August 16, 1965.



TABLE 4 - ANNUAL COST (REVISED)

Choctaw Creek Watershed Grayson County, Texas

 $(Dollars)\frac{1}{}$

	:Amortization o	of:Operation an	d:
Evaluation	: Installation		:
Unit	: Cost	: Cost <u>2</u> /	: Total
33 Floodwater Retarding Structures; 110,180 feet of Stream Channel Improvement; Multiple-Purpose Structures 1, 4, 10A, 13, 30, 34, 35, and 38, including Basic Recreational Facilities; and Grade Stabilization Structures 101, 102, 103, 104, 106, and 107	- 285,447	28,130	313,577
21,600 feet of Drainage Main and Laterals and Grade Stabilization Structure 105	553	452	1,005
TOTAL	<u>3</u> /286,000	<u>4</u> / _{28,582}	314,582

 $\underline{1}//$ Price Base: 1970 for structure 10A; 1965 for all other structural measures.

 $\frac{2}{2}$ / Long-term prices as projected by ARS, September 1957.

3/ Amortized for 100 years at 3.125 percent, except for multiple-purpose structure No. 10A, which was amortized at 3.25 percent.

4/ Includes replacement costs of \$2,016 for basic recreational facilities and for any structure or appurtenance requiring replacement before end of 100-year evaluation period.



TABLE 6 - COMPARISON OF BENEFITS AND COSTS FOR STRUCTURAL MEASURES (REVISED)

Choctaw Creek Watershed Grayson County, Texas (Dollars)

				AVE	AVERAGE ANNUAL BENEFITS I	BENEFITS 1/					
	Floor	Flood Prevention	: uc	Agricultural Water Management	l Water :	Non-Agricultural Water Management	ultural :			··· ··	
		: More :						••		: Average :	
		: Intens-:	••			Municipal:	••	••		: Annual :	Benefit-
Evaluation :	Damage	: sive :]	:Incidental: e:Recreation:	Damage : sive :Incidental: : Reduction : Drainage:	: Drainage:	Water :	: : : : : : : : : : : : : : : : : : :	: Secondary:	Total	: Cost : 2/ :	Cost
33 Floodwater Retarding Structures; 110,180 feet of Stream Ghannel Improvement; Multiple-Purpose Structures 1, 4, 10A, 13, 30, 34, 35, and 38, Including Basic Recreational Facilities; and Grade Stabilization Structures, 101, 102, 103, 104, 106, and 107 3/101, 102,	197,039		4,236	2,331	f	67,918	157,757	37,165	466,446	313,577	1.5:1.0
21,600 feet of Drainage Main and Laterals and Grade Stabilization Structure 105		950			950			555	2,455	1,005	2.4:1.0
GRAND TOTAL 4/	197,039	950	4,236	2,331	950	67,918	157,757	37,720	468,901	37,720 468,901 314,582	1.5:1.0

14/3/2/1

Price Base: From table 4. Interrelated measures. In addition, it is estimated that land treatment measures will provide flood damage reduction benefits of \$8,847 annually.



